



PTO/SB/08A (10-01)

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| Substitute for form 1449A/PTO | | | | <i>Complete if Known</i> | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | | | Application Number | 10/518,480 |
| | | | | Filing Date | December 20, 2004 |
| | | | | First Named Inventor | MIKHALTSEVITCH, ET AL. |
| | | | | Art Unit | 2862 |
| | | | | Examiner Name | Not Assigned Yet |
| | | | | Attorney Docket Number | WRA0007-US |
| Sheet | 1 | of | 4 | | |

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

| Examiner Initials | Cite No. ¹ | Foreign Patent Document | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
|-------------------|-----------------------|--|--------------------------------|--|---|--------------------------|
| | | Country Code ³ - Number ⁴ - Kind Code ⁵ (if known) | | | | |
| /LMA/ | | WO 92/17794 | 10/15/1992 | British Technology Group | | |
| | | WO 93/11441 | 06/10/1993 | British Technology Group | | |
| | | WO 96/26453 | 08/29/1996 | British Technology Group | | |
| | | WO 99/19740 | 04/22/1999 | BTG International Limited | | |
| | | GB 2 338 787 | 12/29/1999 | Quantum Magnetics, Inc. | | |
| | | GB 2 200 462 | 08/03/1988 | National Research Dev. Corp. | | |
| | | GB 2 255 414 | 11/04/1992 | British Technology Group | | <input type="checkbox"/> |
| | | SU 1,831,680 | 7/30/1993 | Kuznetsov et al. | | <input type="checkbox"/> |
| | | SU 1,824,559 | 06/30/1993 | Kuznetsov et al. - | | <input type="checkbox"/> |
| ↓ | | International Search Report dated 8/4/2003 | | | | |

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| Examiner Signature | /Louis Arana/ | Date Considered | 03/26/2007 |
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| | of 4 | First Named Inventor | MIKHALTSEVITCH, ET AL. |
| | | Art Unit | 2862 |
| | | Examiner Name | Not Assigned Yet |
| | | Attorney Docket Number | WRA0007-US |

| OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS | | | |
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| /LMA/ | | Flexman, et al., "The Detection of Explosives in Airport Luggage Using the Direct Nuclear Quadrupole Resonance Method," Detection of Bulk Explosives Advanced Techniques Against Terrorism, Proceedings of the NATO Advanced Research Workshop, held in St. Petersburg, Russia, 16-21 June, 2003, Series: NATO Science Series II: Mathematics, Physics and Chemistry, Schubert; Kuznetsov (Eds.) Vol. 138, 2004, p. 113-124 | <input type="checkbox"/> |
| | | Garroway, et al., "Explosives Detection by Nuclear Quadrupole Resonance (NQR)," SPIE Vol. 2276, 1994, pp. 139-149 | <input type="checkbox"/> |
| | | Garroway, et al., "Narcotics and Explosives Detection by 14N Pure NQR," SPIE Vol. 2092, 1993, pp. 318-327 | <input type="checkbox"/> |
| | | Chen and Slichter, "Zero-Field NMR Study on a Spin-Glass: Iron-Doped 2H-Niobium Diselenide," Physical Review B, Vol. 27, No. 1, 1 January 1983, pp. 278-292 | <input type="checkbox"/> |
| | | Vega, et al., "Cu Nuclear Quadrupole Resonance of YBa ₂ Cu ₃ O _x With Varying Oxygen Content," Physical Review B, Vol. 39, No. 4, 1 February 1989, pp. 2322-2332 | <input type="checkbox"/> |
| | | Kreis, et al., "Low Frequency Pulse Excitation in Zero Field Magnetic Resonance," J. Chem. Phys., Vol. 89, No. 11, 1988, pp. 6623-6635 | <input type="checkbox"/> |
| | | Erickson, "Optically Detected Multipulse Nuclear-Quadrupole-Resonance Studies of Trivalent Praseodymium in Zero and Weak Static Magnetic Fields," Physical Review B, Vol. 39, No. 10, 1 April 1989, pp. 6342-6347 | <input type="checkbox"/> |
| | | Singh and Armstrong, "Spin Thermodynamics Applied to Pure Nuclear Quadrupole Resonance for an Inhomogeneously Broadband Line in a Spin-3/2 System," Journal of Physics C: Solid State Physics, Vol. 19, 1986, pp. L221-L227 | <input type="checkbox"/> |
| ▼ | | Bai, et al., "Zeeman-Perturbed Spin-Echo FT NQR Spectroscopy," Journal of Magnetic Resonance Series A, Vol. 102, 1993, pp. 137-143 | <input type="checkbox"/> |

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| Sheet 3 | of 4 | | |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
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| Examiner Initials | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
| /LMA/ | | Shastri, et al., "Distribution of Nonequivalent Aluminum Sites Revealed in Al-Cu-Ru and Al-Cu-Fe Quasicrystals by ²⁷ Al NQR," Physical Review B, Vol. 50, No. 6, 1 August 1994, pp. 4224-4227 | <input type="checkbox"/> |
| | | Nickel and Kimmich, "2D Exchange NQR Spectroscopy," Journal of Molecular Structure, Vol. 345, 1995, pp. 253-264 | <input type="checkbox"/> |
| | | Kohori, et al., " ²⁷ Al NMR and NQR Studies of the Antiferromagnetic Superconductor UPd ₂ Al ₃ ," Solid State Communications, Vol. 95, No. 2, 1995, pp. 121-126 | <input type="checkbox"/> |
| | | Peterson and Oja, "A Pulsed Nuclear Quadrupole Resonance Spectrometer," Advances in Nuclear Quadrupole Resonance, Vol. 1, ed. J.A.S. Smith (London: Heyden), 1974, pp. 179-184 | <input type="checkbox"/> |
| | | Ramachandran and Narasimhan, "A Coherent Nuclear Quadrupole Pulse and Double Resonance Spectrometer," Journal of Physics E: Scientific Instruments, Vol. 16, 1983, pp. 643-648 | <input type="checkbox"/> |
| | | Harding, et al., "A Pulsed NQR-FFT Spectrometer for Nitrogen-14," Journal of Magnetic Resonance, Vol. 36, 1979, pp. 21-33 | <input type="checkbox"/> |
| | | Hirschfeld and Klainer, "Short Range Remote NQR Measurements," Journal of Molecular Structure, Vol. 58, 1980, pp. 63-77 | <input type="checkbox"/> |
| | | Grechishkin, "NQR Device for Detecting Plastic Explosives, Mines and Drugs," Applied Physics A, Vol. 55, 1992, pp. 505-507 | <input type="checkbox"/> |
| | | Grechishkin and Sinyavskii, "Remote Nuclear Quadrupole Resonance in Solids," Physics, Uspekhi, Vol. 38, No. 10, 1993, pp. 980-1003 | <input type="checkbox"/> |
| | | Grechishkin, "Application of Multipulse Sequences in Remote NQR," Applied Physics A, Vol. 58, 1994, pp. 63-65 | <input type="checkbox"/> |
| ↓ | | Klainer, et al., "Fourier Transform Nuclear Quadrupole Resonance Spectroscopy," in "Fourier, Hadamard and Hilbert Transforms in Chemistry," A.G. Marshall, Ed. Plenum, New York, 1982, pp. 147-182 | <input type="checkbox"/> |

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| /LMA/ | | Maricq, "Quasistationary State and its Decay to Equilibrium in the Pulsed Spin Locking of a Nuclear Quadrupole Resonance," Physical Review B, Vol. 33, No. 7, 1 April 1986, pp. 4501-4513 | <input type="checkbox"/> |
| | | Alexander and Tzalmona, "Relaxation by Slow Motional Processes. Effect of Molecular Rotations in Pure Quadrupole Resonance," Physical Review, Vol. 138, No. 3A, 3 May 1965, pp. A845-A855 | <input type="checkbox"/> |
| | | Carr, "Steady-State Free Precession of Nuclear Magnetic Resonance," Physical Review, Vol. 112, No. 5, 1 December 1958, pp. 1693-1701 | <input type="checkbox"/> |
| | | Osokin, et al., "The Quasistationary States in Multipulse NQR," Z. Naturforsch, Vol. 47A, 1992, pp. 439-445 | <input type="checkbox"/> |
| | | Osokin and Shagalov, "NQR Transient Nutation and Rotary Echoes in the Effective Field of Multiple-Pulse Sequences," Solid State Nuclear Magnetic Resonance, Vol. 10, 1997, pp. 63-72 | <input type="checkbox"/> |
| | | Liao and Zax, "Analysis of Signal-to-Noise Ratios for Noise Excitation of Quadrupole Nuclear Spins in Zero Field," Journal of Physical Chemistry, Vol. 100, No. 5, 1996, pp. 1483-1487 | <input type="checkbox"/> |
| | | Marino and Klainer, "Multiple Spin Echoes in Pure Quadrupole Resonance," The Journal of Chemical Physics, Vol. 67, No. 7, 1 October 1997, pp. 3388-3389 | <input type="checkbox"/> |
| | | Hitrin, et al., "Pulsed Spin Locking Theory in Pure Quadrupole Resonance," Vol. 83, 1982, pp. 269-275 | <input type="checkbox"/> |
| | | Zussman, "Effect of Molecular Reorientation in Urea on the ¹⁴ N PNQR Linewidth and Relaxation Time," The Journal of Chemical Physics, Vol. 58, No. 4, 15 February 1973, pp. 1514-1522 | <input type="checkbox"/> |
| | | Bradford, et al., "A Steady-State Transient Technique in Nuclear Induction," Physical Review, Vol. 84, No. 1, 1951, pp. 157-158 | <input type="checkbox"/> |
| V | | | <input type="checkbox"/> |

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